

REMARKS

Claims 15 and 19 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

Use of the word "expenditure" in claim 15 is the basis for the Examiner's assertion that the claim is indefinite. The present response amends claim 15, and in doing so the word "expenditure" has been eliminated in favor of a more customarily used word, "volume", a conventional adjustable gas property. Accordingly, the indefiniteness rejection of claim 15 has been overcome.

Cancellation of claim 19 renders the indefiniteness rejection of that claim moot.

Claims 15-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the previously cited Patent 5,219,544-Kupper in view of Patent 4,546,829-Martin et al, also previously cited.

In applying the references the Examiner states that Kupper discloses a process for reducing contamination in cement clinker production, including subjecting effluences to at least adsorption. However, the Examiner recognizes that Kupper fails to disclose or suggest adjusting the effluences to obtain gases compatible with hydrocarbons and injecting such adjusted effluences to recover hydrocarbons.

The Martin et al reference has been relied on as teaching the concept of using treated combustion gases for recovering hydrocarbons in oil well deposits and also the step of adjusting and injecting such gases. The Examiner therefore concludes that one of ordinary skill in the art would have known at the time of applicants' invention that these steps provide the advantage of making a waste product (combustion gases) useful in

recovering a product from an oil well. The Examiner further concludes that one of ordinary skill in the art would have found it obvious to have used the gases generated in the Kupper process in a hydrocarbon injection process as taught by Martin et al since N_2 and CO_2 are fungible commodities, and it doesn't matter how the gases were produced or isolated.

In his summarization the Examiner concludes: that it would have been obvious to have included the steps of adjusting and injecting, as called for by claim 15; that while Kupper fails to explicitly disclose CO_2 and N_2 , it is well recognized that CO_2 and N_2 are present in such gases, as called for by claim 16; and that with respect to claim 20, while Kupper fails to explicitly teach the type of combustion fuel used, it is well recognized that fossil fuels are commonly employed for such combustion since they are inexpensive and easily combustible, thus being obviously appropriate for use in the Kupper process.

Regarding claim 18, the Examiner states that Martin et al teach the desirability of purifying the exhaust gases to obtain CO_2 and N_2 , and inasmuch as the amount of N_2 found in the atmosphere is approximately 80% and the amount of oxygen is approximately 20%, combustion by Kupper or Martin et al using air would inherently result in 75-85% N_2 and 15-25% CO_2 as called for by claim 18, the sum of CO_2 and N_2 being 100% naturally resulting from Martin et al's teaching of purifying the gas to obtain N_2 and CO_2 .

Claim 17 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kupper in view of Martin et al for the reasons detailed above, when further considered in light of Patent 5,133,406-Puri. The latter reference is relied upon as teaching the

desirability of recycling oxygen (col. 3, lines 57-65) and water (col. 4, lines 38-40) in order to eliminate unwanted components from the injection.

Reconsideration and withdrawal of the obviousness rejection is requested for the reasons now to be presented with respect to the remaining pending claims--viz., amended main claim 15 and dependent claims 17 and 20.

The amended main claim 15 now positively recites that applicants' process mixes both the effluences from the combustion of fuel and effluences obtained by calcining limestone to the extent that a percentage of N₂ and CO₂ of 75 to 85% and 15 to 25%, respectively, occurs and that the sum of both percentages is 100%.

The Examiner has noted in the latest Office Action that obviousness can be established by combining prior art references only when there is some teaching, suggestion or motivation to do so found in the references themselves or in knowledge generally available to one of ordinary skill in the art. Applicants submit that the process now recited in the amended main claim 15 cannot properly be held unpatentable and that a holding of unpatentability would involve the impermissible use of hindsight.

There is no disclosure or suggestion whatsoever in any of the cited prior art of a process for recovering hydrocarbons wherein effluences from both the combustion of fuel and the calcinations of limestone are mixed. The absence of any suggestion that such mixing is obvious becomes even more clear when consideration is given as to what this mixing entails so as to achieve a suitable gas composition for the process.

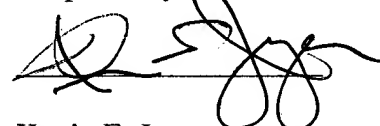
Limestone is calcined to CaO and CO₂ whereby calcining gases are rich in CO₂. Thus, with applicants' process it is not the case that just air (having an approximate

80/20% nitrogen to oxygen ration) is being used to obtain a desired N_2 / CO_2 ratio. Instead, because of the high CO_2 content of the effluence of calcining gas, and because the effluence from combusting fuel forms CO_2 and steam (which itself distorts the original 80/20 nitrogen to oxygen ratio), there is in applicants' process an effluence mix which is not comparable to what is obtained by Martin et al's purifying a gas to obtain N_2 and CO_2 . Consequently, effective mixing of the combined calcining and combustion effluences is an important further step of applicants' process required to bring the nitrogen and carbon dioxide ratio to the claimed percentage amounts, the sum of the respective percentages being 100%.

Because none of the prior art discloses or suggests combining the effluences of calcining and fuel combustion to recover hydrocarbons in oil well deposits, and since such an effluence combination necessitates a further step of mixing the effluences in a manner so as to produce a suitable ratio range of N_2 and CO_2 (with the sum of the N_2 and CO_2 percentages totaling 100%), the process would not have been obvious at the time of the invention to a person of ordinary skill in the art.

In view of the foregoing claim amendments and reasoning, it is urged that the application now is in condition for allowance, and such action is solicited.

Respectfully submitted,



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